No 15 Benj

#15

Influence of the Spring

15

Benj. Tompkins
March 7. 1818

Influence of Spring

An Enquiry

Into the Influence of Spring upon the Human Body

In the Production of Disease,

Submitted to the Examination of the Provost, Trustees and

Medical Professors in the University of Pennsylvania

For the degree of Doctor of Medecine.

An Inquiry

Into the Influence of Spirits upon the Human Body

In the Production of Disease.

Submitted to the Examination of the Trustees and

Medical Professors in the University of Pennsylvania

For the degree of Doctor of Medicine.

An Enquiry, &c.

All writers who have enriched the science of medecine, even from the earliest times down to the present age, have remarked that the seasons very powerfully influence the diseases of man. Notwithstanding the fact has been so long obvious, yet an acquaintance with many of the causes which produce it, has never been obtained. Nor do I expect to shed much light on the subject, for it is more than probable, that all which I shall write has been known long since.

It seems to me, that the direct and indirect causes of many of the diseases with which man is afflicted in the various seasons, are to be sought for in the different positions of the earth towards the sun, which we know exercises an immense power, not only on every plant and animal, but even on all those beings which are devoid of life.

A very strong reason for entertaining this opinion is obtained from the state of man in the different climates, where not only his complexion, but even the very basis of his fabric is so modified, as to make him a being differing so much in appearance and shape, that many philosophers have entertained the antiscriptural opinion, that Adam was not the sole

progenitor of the human race. For what two beings of the same species present such opposite appearances, as the Samoïd Tartar or wretched Esquimaux who inhabits the polar regions, compared with the European or American who dwells in the temperate zone. The diseases which prevail in the different climates vary just as much in their nature and proportion as the inhabitants of those climates do in their shape and appearance. For so we are informed by Hippocrates in his book on Air, Water and Situation. And one would be led to this conclusion, from the consideration, that the same causes which could operate so powerfully in changing the whole physical man, would also render him liable to peculiar diseases.

That circumstances connected with an increase or decrease of the power which the sun exercises on the various regions of the earth's surface, constitute the great cause which operates in the production of all the astonishing varieties, in the form, temper and also diseases of the human species, must be admitted by every philosopher who will rightly consider the subject. The immense solar heat of the Equatorial Regions causes the whole system of created beings in those parts, to present very opposite appearances to what takes place in the Polar Regions, where the sun exerts his power only for half the year, and then in a very oblique and inefficient manner. It is not only to the direct

influence of the quantum of the sun's beams, that we are to attribute the changes which man undergoes in different situations on the earth, but also to their indirect influence, operating through the medium of customs, as it regards modes of living, dress and other habits.

As the nations who inhabit the various climates, recieve different proportions of the influence of the sun, so do we as our seasons vary; and tho' the sun changes his energy with regard to us, according to our particular situation on the earth, yet notwithstanding I think it sufficiently manifest, that the seasons influence us on the same principle, that the climates influence their inhabitants. On this point, Doctor Huxham thus expresses himself: "If the various temperatures of the air in different climates produce diseases altogether different; why should not different tempers of the air, even in the same country, produce also different affections of the body? And so indeed they do;" And the same author goes on to observe, that what Celsus says of Difference of places is equally true of Difference of Seasons" Differe semper pro Natura Locorum Generea Medicinae, et aliud opus esse Romae, aliud in Egypto, aliud in Gallia". Huxhams Works. Vol. 1. P. XXVI.

The regular succession of the seasons is produced by the annual circuit of the earth around the sun, during which our position towards that immense body is constantly changing, so that in Spring we recieve a greater portion

of his influence than in winter, in summer a greater than in spring, in autumn his energy upon us begins to decline, the winter comes when it is less than in any other season of the year.

The seasons thus formed, merely designate the four grand divisions of the earth's annual revolution, and according as they respectively prevail, so are all beings correspondently influenced. The whole vegetable kingdom is under their controul. All inferior animals submit to their varied influence, as is evinced by the stated occurrence of particular dispositions and habits, by the regular appearance and disappearance of birds of passage and by the periodical torpor and reanimation of certain quadrupeds. Even man himself, who by the superiority of his nature is less under the dominion of physical necessity than any other created being, experiences as the seasons change, different states of body and mind. Richerand in his Elements of Physiology remarks, that "the periodical return of the Seasons determines that of certain derangements, to which the animal economy is subject. The same diseases manifest themselves under the influence of the same temperature, and to use an ingenious comparison, resemble those

birds of passage which visit us at stated seasons of the year. Thus hemorrhages and eruptive affections come on with the return of Spring, summer comes attended by bilious fevers, autumn brings on a return of dysenteric affections and winter abounds in inflammations of the lungs and other parts". Hippocrates has also said that "the health and diseases of man were under the influence of the seasons, and that according to their nature so is he affected". Indeed, throughout all the writings of this very ancient and celebrated physician, we find that he attributed the production of most all acute diseases to the various influence which the constitutions of the different seasons have over the body of man.

In commencing my enquiry into the influence of Spring on man in the production of disease, I am met by a crowd of difficulties. There is no one thing connected with medical science involved in more unsearcheable obscurity, than a knowledge of the causes of many disorders which afflict the human family. This has been acknowledged by the wisest physicians, who were well acquainted with the laws of the animal economy hitherto developed, as well as all the discoverable external causes which could operate on and change the actions of the body.

And since such superior intellects, furnished with the advantages of a long and faithful experience, have been unable to penetrate into the mystery of many of the causes of disease, we must conclude that they are hidden in the inmost recesses of secrecy, where like many other things, they completely elude mortal research. The dark envelopment of this subject, is surely the source of many imperfections in the healing art. For from a knowledge of the deleterious causes which operate on the human body and from their nature produce disease, can only be deduced that system of prophylaxis which is revealed by principle and founded in reason.

In the prosecution of the present subject, I shall not attempt the consideration of the nature of those vernal epidemics and contagious diseases, with regard to the origin of which the history of medecine furnishes no information, but confine my attention to certain diseases, which seem most obviously to arise from the general nature of the Spring season and particularly to such as are called into existence by the action of vernal heat and by sudden vicissitudes in the manifest constitution of the atmosphere. There are also some diseases of the chronic order as Phthisis Pulmonalis, Scrophula, &c. whose course is materially influenced by this season, These I will endeavour to write something about.

But, before I enter into particulars on these heads, I shall digress to make a few observations on a certain part of physiology, in order that I may subsequently not interrupt the connexion of my remarks.

In enquiring after the nature of diseases, we cannot pay too much attention to anatomy and physiology. An acquaintance with the structure of the human body, with all its minute, with all its great operations including particularly the processes which must go on uninterrupted in order that we may have health, will do more towards finding out the nature of complaints, than all the most fertile talents for theorizing.

Now, that the body of man may be properly supported, it is just as necessary that its impurities should be drained off that the portion of the general mass of the fluids, which does not contribute to the healthy constitution of the solids, as well as the results of the decomposition of the solids, should be eliminated; as it is, that the nutritious portion of our alimentary substances should be retained and undergo assimilation. What we recieve into our body for its nourishment, consists of secrementitious and excrementitious matter. After the assimilating powers have appropriated to the system what is necessary for its healthy constitution, the residue is thrown out of the body by the emunctories, which also afford an outlet to

those parts of the body which are constantly yielding to vital action. Hence are constituted the two grand divisions of organic life, and in the proper and harmonious action of these two important sets of functions, health when not assailed by external powers is found to consist. For by the functions of the assimulating powers are our bodies supplied with the materials of their existence, and by the functions of the emunctories are all the impurities which would have accumulated in the system and interfered with the movements of health completely removed from the sphere of vital action

The skin, the lungs *, and the kidnies carry off what the assimilating powers have refused and what it would be pernicious to retain, particularly the continual waste of the solids, while the alimentary canal performs a coarser office by giving passage to the fecal mass.

Confining my attention to the emunctories of the body, I go on to state, that whenever they do not perform the offices allotted them by the nature of the construction of the

* I consider the lungs one of the emuntories, Pulmonary exhalation comes from a greater surface than cuticular exhalation and is similar to it in quality tho' greater in quantity. They are

body, many disorders must be the inevitable result, as one may be convinced of, by taking into consideration the nature of the substances which are consequently retained. And hence among the most prolific sources of disease may be enumerated an interruption in the function of the skin p. p. 10 and lungs an improper state of urinary secretion and the retention of the fæces, in consequence of a want of due action in the alimentary canal.

Supplemental to each other. Chapman's Richerand. p. 258. The mucous membrane which lines the pulmonary texture is a mere prolongation of the skin. Between the lungs and skin there is then the most intimate connexion in healthful functions as well as in morbid affections. In the Exanthematic and cutaneous affections generally, active purging is hurtful, for it determines the disease to the internal parts. Precisely on the same principle is purging injurious in Pulmonary complaints, and that it is so, immemorial experience has established. For Morgagni, Ramazzini, Cullen, Sydenham, from my own reading, express their opinions to this amount; that active purging injures much in all pulmonary complaints. but on what principle they could not tell, only knowing the fact from experience. Emetic articles received into the stomach in nauseating doses, operate on the lungs also very much on the same principles that they do on the skin. Mucous is expectorated from the lungs, merely because this organ with its peculiar construction is

All the emunctories of the body are endued with the power of performing vicarious functions, as is very obviously evinced by the

Lodged in the thorax. The skin is affected according to its construction and the nature of its office and situation.

All physiologists must allow, after viewing the subject in the proper light, that the skin, alimentary canal and kidnies are endowed with supplemental powers. And to me, it seems very evident, from the views which has been just given of the mutual relation which exists between the lungs and the skin, that the lungs also may be associated with these organs in vicarious functions. Independent of the emunctorial function of the lungs, which is subject to derangement by many causes, the all effectual office which this organ exercises on the blood must be interrupted by every morbid cause which is applied.

Q. this per 9: The human body as we have hinted, is constantly undergoing composition and decomposition. It is through the emunctories that those portions which have ceased to form a part of the animal body are thrown out. It seems, from a consideration of the nature of the emunctorial discharge, that the body would suffer more immediately and grievously, from a want of due action in these organs, than from a temporary inanition produced by a want of food or by the inability of the assimilating organs to make use of the recieved aliment. Nothing can be more pernicious to the body, than those

influence
and alm
ing a ga
through
the proce
many
thousand
of health

sub
posse
poei
hna
Moreo
parte
impr
of imp
at mo
is con
impo
it a
by a
recep
is pu

influence which the seasons and different states of the weather and also certain states of the animal economy, have in directing a greater or less quantity of the excretions and waste matter through those channels which conduct out of the body. And in the present state of things when man is surrounded by so many external enemies, it is absolutely necessary that such should be a law of his construction in order that a state of health nay even of existence might be preserved.

substances which once formed a part of it, but which by the decomposing process, have ceased to be animalized and become foreign matter. Retained animal excretions, it has been long known, are capable of producing the greatest morbid derangement. Moreover the assimilating organs are lodged securely in the internal parts of the body and consequently are not so subject to be morbidly impressed by external agents as the emunctories the grand outlets of injurious matter and particularly the skin and lungs. The atmosphere which is the great source of many of our diseases is constantly acting on these two last mentioned and very important organs and according to it's constitution so does it affect their functions. The alimentary canal is lined by a continuation of the skin and it is the primary receptacle of all our food which according to its nature is friendly or unfriendly to the body. Through this medium

Bet
is a mo
which f
body, by
of any
prieties
so as to
some
Wh
which
is not
to the
and
If he
appr
tho
well
stu
mu
the
the

Between the skin, lungs, alimentary canal and kidnies there is a most intimate consent. For whenever the perspiring matter which flows through the skin is prevented from passing out of the body, by the constriction of its proper channels, or by the operation of any other cause, so necessary is it, that this discharge of impropriety should take place, that nature has arranged our bodies so as to enable the other emunctorial organs to perform in some measure the office of the skin

When this change in emunctorial action is induced by causes which operate gradually experience has shewn that the system is not much disordered. ¶ But all sudden changes are noxious to the body even those from bad to good. So whenever a

external agents also find a surface on which they can operate and change the movements of the body from the standard of health to that of disease. The kidnies cannot be so directly approached by foreign agents. Hence, they are not so often deranged, tho' their emunctorial function is of the greatest importance to the well being of the body and it is very speedily altered by the exciting state of the alimentary canal, skin or lungs.

¶ As for instance, in summer the cuticular discharge is much greater than in winter. But when this change of action in the skin is gradually brought about by the regular change of the seasons no malady ever occurs. For the body suits itself

morbid cause acts suddenly and creates rapid changes from one emunctory to another the system always suffers from the production of some disease. And in this way, as I shall hereafter endeavour to point out, are many of the diseases of spring, brought into existence, by sudden vicissitudes in the weather, depriving the skin of its function, which in this season, in consequence of the new state of the system ought to perform a much more enlarged office than in winter.

If the view which my reason enables me to take of this subject be correct viz. that the emunctories are endued with the power of performing vicarious functions, that when any one of them is deprived of the power of performing its allotted office, either by an irregular change in the seasons, by vicissitudes in the

to this case. Haller in his work on Physiology mentions several cases of great inactivity in the alimentary canal in some persons who had no faecal evacuations for thirty or forty days. Their health was not impaired. There are cases recorded of men who in the course of the whole year only emptied their bowels five o six times. Innumerable other instances might be cited, shewing that a gradual change in emunctorial action can be borne by the body. The skin and alimentary canal have been mentioned as affording the most remarkable instances on this subject. But it is very probable that the same

constitution of the atmosphere or by any other cause, one or all of the other emunctories, according to the existing state of the body; can in a greater or less degree act for that whose power is suppressed; it would seem that in any state of things which would morbidly operate on the cutaneous organ that the lungs, kidnies and alimentary canal would be peculiarly liable to disease, in consequence of some one or all of them having to make an effort to act for the skin. For it seems entirely evident that when the materia perspirabilis (which according to the computations of Sanctorius is very great in quantity as well as various in quality) cannot pass through the pores of the skin, obstructed by any cause whatever, that an effort will be made by the body to throw it out by the other emunctories. This appears to correspond entirely with my ideas of the vicarious functions of the emunctories and what would naturally result from their intimate connexion in office. Perhaps, they may be liable to disease because they are emunctories, for the excretions frequently vary in their qualities, and they have in their composition all those substance which would injure by being retained within the body.

For my present purpose the doctrine which I wish to

consideration will hold good with regard to the other emunctories.

inculcate is explicitly this viz. that in the Spring of the year, certain changes take place in the actions of the human body, increasing thereby the function of the cutaneous organ which stands related to the whole system and particularly to the other emunctories, in the way I have mentioned, and that certain causes occur during this season which interrupt the emunctorial function of this organ, in consequence of which, many vernal diseases are brought into existence.

These observations being premised, I now proceed to consider the influence which the vernal sun has in changing the state of the system and in producing certain predispositions which lay the groundwork of those diseases of the origin of which I am to speak.

During winter, a large portion of our fluids is confined to the great vessels which lay in the internal parts of the body; for the cold of the season by its constricting and sedative influence so diminishes the diameters of the smaller external vessels, as to render them unable to admit their proper contents. That cold can produce this effect is rendered sufficiently obvious, by the appearances which one exhibits, after exposing himself to a low temperature and then coming into a warm room. His face, his hands and all his external parts which had been much diminished and lessened in size, in every way, by the first cause, are by the latter, very much enlarged and rendered even turgescent. This fact can only be

accounted for by the influence of heat over the system, which overcoming the effects of cold, restores to the smaller vessels their power of admitting and circulating the fluid which had been repelled from them.

Something analagous to this I conceive takes place in the spring of the year. The sun is placed in the center of the planetary system to which our earth belongs and not only imparts to it motion and heat, but also destributes life health and disease to every moving creature on its surface. During this season, our position towards this luminary is materially changed, so that we recieve his rays for a longer time and in a less oblique direction than in winter. By this increased quantity of solar influence our bodies are enabled to counteract the power of the winter's cold and to give the fluids, which had been confined to the internal parts, a kind of centrifugal motion by which they pervade the whole system, filling all the minimi vasculi, as is very conspicously evinced by their very minute cutaneous destribution.

Vernal heat may operate in the production of this effect in three ways.

1st By rarefying the atmosphere and consequently diminishing its pressure on our bodies which had powerfully determined the fluids inwards.

2d By insinuating itself into all parts of the body and exerting on them its peculiar expansive power.

thereby
aware
the vit
other p
alterati

M
the syst
season
ted by
had st
tes Sy
effervesc

A
that no
the infl
that the
power
erly be

The
produced
of at mos

3d By making specific impressions on the sentient surfaces thereby stimulating the whole system to increased action. I am well aware that the influence of solar heat is greatly modified by the vital properties; but I am also convinced that it like many other physical causes can produce the most remarkable alterations in animated bodies.

Many of the ancient physicians ℙ noticed the change of the system which I have just spoken of as occurring in this season and they believed that it was entirely a process instituted by nature for the depuration of the blood which the winter had stocked with impurities. Even in the time of the immortal Sydenham, this opinion prevailed. He called it a vernal effervescence which purged the inmost recesses of the body.

In the present enlightened state of physiology we know that no such process as Effervescence can take place in fluids under the influence of vital properties; but we are ready to admit that their distribution can be so materially altered by the power of the vernal sun as to create what may more properly be called an Arterial Predisposition.

The Arterial Predisposition then prevails in Spring and is produced as we have endeavoured to shew, by a diminution of atmospheric pressure and by the warmth of the season exciting

ℙ Vere Pituita magis dominatur at Sanguis increscit.
Hippocrates. Lib. de Humor. Sec. 13.

into acti
capillary
an increa
pores are
perspirat
perspiro
with wh

The
for through
any beverage
in its func

with u
communi
of these
always
according
being no
in consec
ancient
facts wh
matter.

into activity not only the larger vessels of the body, but also their capillary terminations on the external surface, which communicate an increase of vital energy to the cutaneous organ whose innumerable pores are opened furnishing an outlet to a much larger portion of perspirable matter; it being a law of the animal economy that the perspiring process should be in a compound ratio of the force with which the heart propels the blood in the minute capillaries

Chapman's Richerand. p. 260.

The skin now becomes the most important emunctory in the body, for through its pores are many noxious matters eliminated; and it is my business next to consider those causes which produce an interruption in its function and the diseases which arise therefrom. ℙ

ℙ A physician in searching after the nature of a disease with which a patient is afflicted, should never loose sight of the emunctories. For it must be recollected, that it is in restoring the functions of these organs, which some morbid cause had deranged, that nature always makes her endeavours to relieve the sick. And, in this way, it is according to my opinion, that morbific matter is thrown out of the body, it being nothing more than excretions or waste matter, which had accumulated in consequence of a want of due action in the emunctories. The ancient physicians, who have handed down to us some of the most valuable facts which support medical science, all believed in peccant or morbific matter. But they were decieved with regard to the source from which this

The external causes which obstruct the passage of perspirable matter, are to be found in the state of the atmosphere.

matter was derived: for they supposed that it, in almost every instance, had an external origin. But the fact appears to be, that this morbific matter is generated in the body and improperly retained there, in consequence of the derangement of the natural and healthful functions of the body by morbid causes applied from without. Acute diseases, whose courses are more perspicuously marked than those of a chronic form, generally have evident modes of termination, which consist in an alteration of the emuncto-rial functions of the skin, lungs, kidnies or alimentary canal according to the origin and nature of the disease which thus resolves itself. Most of the remedies of the physician are given to improve or alter emunctorial function. If, for instance, a disease is produced by an obstruction of the function of the skin, it must be cured by those means which will restore to this organ its office. All allow that a torpor in the action of the alimentary canal and the consequent retention of feces, produces manifold diseases. Why then will not a torpor in the cutaneous organ and the retention of Materia Perspirabilis have also very numerous morbid effects? And this is most certainly the case.

There is no emunctory in the body which performs a more important office than the skin. Sanctorius, in his Medicina Statica assures that he ascertained by correct experiments, that

Throughout the whole spring, and particularly about the vernal equinox, the state of the weather is remarkable for its

in health, a greater evacuation is made from the skin in one day, than from the alimentary canal in ten. He has also stated that the cuticular discharge was more than double that of all the other evacuations.

The matter of perspiration consists of volatilized animal substances as well as certain portions of the chyle which were not fit for assimilation. Berthollet states that it holds in solution ammoniacal as well as other salts. He also detected in it, in some instances, phosphoric and other acids. Like the urine its chemical constitution often varies. Chapman's Richerand. p. 261.

According to Richerand the experiments of Lusine of Lingry and of several other naturalists shew that carbonic acid is constantly formed on the skin so that the skin may be considered as a supplemental organ to that of respiration. I have already stated that cutaneous and pulmonary exhalation were supplemental to each other.

From all that has been said concerning the emunctorial function of the skin, I think we may rationally conclude, that an obstruction in the office allotted to this organ, is one of the most powerful sources of derangement to the whole animal economy. Sanctorius while on this subject asks "What then must be thought of those physicians who in all manner of Disease

Illustration
continually
effect posit
its pores is
Sudderby
of many
and commu
in the Sp
evident,
function
the perspi
where they
proper c
the function
the other
the body,

fluctuation and uncertainty. Sudden vicissitudes from heat to cold are continually occurring. These changes in the temperature of the air affect particularly the skin. When warmth prevails a discharge from its pores is elicited, which the occurrence of a frost or cold wind suddenly suppresses. And in this way do I account for the production of many of those thoracic and pulmonary Phlegmasias, Quinsies, and common Catarrhal affections which are such prevailing diseases in the Spring of the year. And, really, to me it seems very evident, from the consideration of vicarious emunctorial function that the above mentioned diseases are produced by the perspirable matter being suddenly thrown on the parts where they are seated in consequence of the obstruction of its proper channels. For if this were not the case, a stoppage in the function of the skin would not afflict the lungs or some one of the other emunctories more particularly than other parts of the body, tho' from the same cause all other parts suffer.

have regard only to what is evacuated by stool and urine, and never take any notice of the Discharge by insensible perspiration".
Doctor Quinsey, in his annotations to Sanctorius, observes that when the quantity and quality of the cuticular discharge is taken into consideration, it ceases to be a wonder that the body becomes so much disordered by taking cold (as it is commonly called, which is nothing more than a Perspiratio Damnata)

Tha
of the Prev
mitted on
made of
cause
unseaso
opinion
disease
poses
that
skin
functi
being
the d
morbi
T
which
suppo
poses
out of
and
damp

That the suppression of perspiration has influence in the production of the Pneumonic Inflammations which are so often epidemic in Spring, is admitted on all sides. But there is a contrariety of opinion with regard to its mode of operation. Some suppose that it acts merely as an exciting cause calling into activity the secret effluviae which float in the unsearchable constitution of the atmosphere. But I incline to this opinion, that the whole cause as well as the nature of these diseases frequently results from a determination from the stopped pores of the skin to the viscera of the thorax; in other words that from the wonderful communications between the skin and lungs and from the known subserviency of the functions of these two organs, that the perspirable matter being checked in its usual passage, is thrown on the part where the disease is seated, whence it distributes its effects by morbid association over the whole body.

The highly inflammatory nature of many of those diseases which originate in Spring can evidently result from a suppression of perspiration. For through the innumerable pores of the skin an immense portion of heat is conducted out of the body, giving volatility to the insensible perspiration And when these avenues for throwing out superabundant heat are closed, fevers of the most inflammatory grade

more than by any obstruction of the sensible evacuations".

are known
the concomita

An oth
of the a cu
perspiration
mating. For
tion of the
respire m
the physici
by giving
been confin
ed in an
pel of that
ng, till th
of returnin
whole b

P. 9
it is m
it assure
carried
to the lun
we are
But no

are known to occur. In all ages a dry and constricted skin has been the concomitant of the introduction of the most fatal fevers.

An other reason for supposing the whole nature of some of the acute vernal diseases to consist in the suppression of perspiration is obtained from their favorable mode of terminating. For almost, in every instance, this consists in the restoration of the function of the skin. As, in the case of a Pleurisy, excessive morbid excitement is first reduced by the lancet of the physician; the skin is thus enabled to perform its salutary office by giving passage to the perspirable matter which had partly been confined in the body and partly thrown out by or retained in an unnatural organ. And never does the patient feel & that the morbid concatenation of his disease is breaking, till the skin has resumed its office, when the feelings of returning health begin to destribute themselves over the whole body.

Q. If the system has any nosometer, any power by which it is made conscious of its state, as it regards health or diseases it assuredly is selffeeling, which when all the motions of life are carried on with perfect regularity and in complete obedience to the laws of our healthy organization, always indicates that we are well and not improperly operated on by any cause. But no sooner are the actions of the system interfered with by

Up
up the ac
disorders
which
deeply in
Indeed
been dest
by succee
together"
is to be s
for soon
being hea

unfo
infor
If ca
more
feelin
be ca
spoke
from
with
and
then

Upon a consideration of the especial necessity of keeping up the action of the cutaneous organ and of innumerable acute disorders not only of the emunctories but of the whole system which result from its stoppage, Sydenham who looked deeply into the nature of diseases thus expressed himself "Indeed I am of opinion that abundance more have been destroyed by these means (viz by exposures to cold sudden ly succeeding heat) than by the sword, plague and famine together." The manifest external cause of the greater part of fevers is to be sought for hence; 1. either a person has left off his clothes too soon or. 2. imprudently exposed his body to the cold after being heated by violent exercise; whence the pores being suddenly

unfriendly stimuli of whatever nature than this same power informs us that all is not right, that we are under the influence of causes which are unsalutary and which tend to interrupt the movements of health. What conscience is to the soul of man, this feeling is to his body. Indeed, I will ask, if this very feeling may not be called the conscience of the body. Physicians of former times spoke of such a power, but they located it in the stomach from which Viscus they supposed that it issued out its information with regard to the state of health or disease. This is only partly true and if we believe in the existence of any such power (for which there seems sufficient reason, the whole nervous system and

closed
that w
a posi
then se
juices is
Dr
healthy

The
the inf
of the
consist
these
air a
their
common
or an
but

closed and the perspirable matter retained in the body that would otherwise have passed through them, such a particular kind of fever is raised in the blood as the then reigning constitution or the particular depravity of the juices is most inclined to produce."

Dr. Armstrong, in his immortal poem concerning health has very tritely said,

From this fatal source" P.

"What woes descend is never to be sung.

The epidemic nature of Quinsies and many of the inflamatory diseases of spring and particularly of the pneumonic affections has been supposed to consist in certain secret constitution of the atmosphere. But I think that the manifest qualities of the air afford a much more rational solution of their general prevalence. For changes in the common atmosphere as it regards heat or cold or any other states are not confined to a spot but extend over the

country

P. Retention of Perspiration.

in a very eminent degree that part of it allotted to the stomach would seem the most proper situation for it.

country
At se
atmosph
favours t
of the Th
and Tho
rivers, e
to the Al
over a
season
the time
supposed
dysenter
fluction
viscera
the bod
neck, an
attacks
perhaps
every i
in the
in this
Burnin
very r
can n

country for a great distance around

It seems that a sudden change from heat to cold in a dry atmosphere (and such a change is common in spring) particularly favours the production of inflammations in the contents of the Thorax and in the lining membrane of the Fauces and Throat. While this change, when it more gradually occurs, especialy if it is accompanied with humidity, determines to the Alimentary canal and sometimes to the Kidnies. However a great deal depends on the general nature of the season and on the particular state of the system at the time the disease is formed. For in autumn a suppression of perspiration will cause diarrhoeas and dysenteries; and the same season also favours the production of inflammations of most of the abdominal viscera. While in Spring, when the determinations of the body are centrifugal, the contents of the Thorax, the neck, and the head seem to be most exposed to the attacks of disease. Upon this last consideration is founded perhaps, the advice of Hippocrates, "to take a purge every week in spring" in order to prevent constipation in the bowels which are very apt to become inactive in this season." For Pleurisies, Peripneumonies, Burning Fevers, and such diseases as are called acute, are very rare, as these diseases, when the belly is loose, can never get a considerable head." Clifton's Hippocrates. p. 6.

The di
interrup
happen
matter, i
will pa
a supp
Lary ca
the body
In this s
Inalie
variavar
orientu
(Anni)
Mutati

a consi
constitu
influence
have
change
these ch
of Spir
sources
Inal

The diseases just mentioned are most usually caused by an interruption in the function of the skin, but they seldom ever happen when the belly is loose, for in this case the perspirable matter, if prevented from going out through the pores of the skin will pass off by the alimentary canal. So, we may learn that a suppression of perspiration will affect the lungs, alimentary canal or kidnies, according to the prevailing state of the body and to the nature of the constitution of the atmosphere. On this subject I shall again consult the Oracle of Medecine. Qualia Tempora, Tales morborum Constitutiones — Atqui, prout variaverit Tempus, similes aut dissimiles erunt Morbi qui in hoc oriuntur. Lib. 1. de Humor. Sect. 7. Conversiones Temporum (Anni) maxime pariunt Morbos, et in ipsis Temporibus Magnae Mutationes Frigoris putà aut Caloris; et sic de coeteris —

Aphorism. 1. Sec. 3. Lib. de Humor. 8. —

Circumstances do not require that I should enter into a consideration of all the different states of the manifest constitution of the atmosphere in Spring and to their influence on man in the production of disease. I have only noticed particularly the effects of a sudden change in the temperature of the atmosphere, because these changes form the most striking characteristics of Spring weather and are among the most fruitful sources of the diseases which I have mentioned.

I shall now go on to make a few observations concern-

-ing

ing some other diseases which are called into existence by the nature of the season or such as have their course materially influenced by the same cause, I shall first write concerning

Hemorrhages. The causes which produce hemorrhages in spring seem to be 1. Vernal heat exciting great arterial activity 2. The rarefied state of the atmosphere. By the influence of these two causes, the blood in its increased circulation, operates more forcibly on the containing vessels and ruptures those in which it suffers local congestion in consequence of their state of local debility or any other cause which produces such accumulation. Epistaxis is a very common disease in this season in consequence of the delicate vascularity of the blood vessels of the nose. Hemoptysis is also a vernal disease. Whenever the action of the arterial system is increased the upper parts of the body, from their proximity to the source of circulation, experience its effects more sensibly than the lower.

Phthisis Pulmonalis. Doctor Huxham, in his excellent account of the constitution of the seasons, often remarks, that Spring proved fatal to consumptive persons. Many persons, in the last stages of this disease, have their existence protracted through the winter, but die in the course of the Spring. This seems to result from the following causes

1st The great increase of arterial activity, by which

the c
pulse
parie
and on
2d
subdor
3.
matory
g
are mo
part of
when h
are ne
Op
the lis
Spring
Opthal
mentio
In man
same
the ne
produc
give b
and s
the sa

the circulation is accelerated through the diseased pulmonary texture causing hemoptysis, rupturing the parietes of an abscess, or completely overpowering the exhausted and enfeebled structure of the lungs.

2d Vicissitudes in the state of the atmosphere producing a sudden suppression of perspiration.

3. The superinduction of Pleurisy or some other inflammatory disorder of the contents of the thorax.

The experience of physicians has long since established that the lungs are more apt to suffer from disease in the Spring, than any other part of the body. This seems to be the meaning of Sydenham when he says, that the acute inflammatory diseases of Spring are very apt to turn to Pleurisies.

Opthalmia. This complaint has long occupied a place on the list of vernal diseases. Hippocrates in his history of the Spring diseases of Thasus, says "First of all appeared humid opthalmies, with weepings, pain and indigestion." Doctor Huxham mentions it as a disease which prevails in every spring. In many parts of the United states it is epidemic in the same season. Sometimes it commences its course about the vernal equinox, but frequently later. The causes which produce it, do not appear to differ much from those which give birth to inflammatory affections of the the throat and such like disorders. For in the spring of the year, at the same time, some are affected with Quinzies, some

with op
as the st
morbid
impose th
susceptibilit
is greatly
by some
causes wh
to excite
Scrop
disease is
The first e
in Spring
the ne
by ulcera
to make
same so
of the sy
Spring
course.
in this
Cateno
Appo
most pre
when the

with opthalmies, some with defluxions from the nose, just as the state of the body happens to be, at the time the morbid cause is applied. The bleak winds of March sometimes injure the eye and produce inflammation in this organ, the sensibility of which like that of every other part of the body is greatly increased in Spring. The pollen of certain plants is said by some authors to have a like noxious effect. All extraneous causes which primarily operate on the eye, are more apt to excite opthalmia in spring than in any other season.

Scrophula. Doctor Cullen says, that the course of this disease is usually connected with the course of the seasons. The first evolution of the scrophulous taint generally occurs in Spring, in the form of moveable tumours on the side of the neck, some of which, in a short time, are dissolved by ulcerations. But ulcers, independent of the tumours, frequently make their appearance on the same part and in the same season. These ulcers heal in summer and most of the symptoms of disease subside, till the return of Spring when they break out again to run the same course. All this depends on the peculiar state of the system in this season which seems to call into activity the latent disease

Apoplexy. This disease according to Cullen "makes its attack most frequently in the spring season and especially when the vernal heat suddenly succeeds the winter's cold."

this coincide
ates the fact
two great
Rheu
uspring, e
tations in
pplication
Cutane
that the s
ts of this o
duced to
ing coosm
spring or
There is
not appear
the year,
this baths
by the acte
during wi
a peculiar
this. Doct
of Spring
He also th
atmosphe
emption

This coincides with the experience of Doctor Huxham who attributes the fact "to the warmth of the season rarefying the blood too greatly."

Rheumatism. Acute rheumatism appears very frequently in Spring, especially when there are sudden and frequent fluctuations in the weather. This disease is often produced by the application of cold to the body, when it is unusually heated.

Cutaneous Eruptions and very many of those diseases which affect the skin principally, in consequence of the increased activity of this organ, appear chiefly in the spring of the year. I am induced to think, that leprous and herpetic affections, Urticaria ring worm and other cutaneous affections usually originate in Spring or have their symptoms greatly aggravated.

There is a species of itch, which in some countries makes its first appearance in the huts of the miserable in the spring of the year, which fact gives some probability to the opinion that this loathsome affection is produced from an effluvium generated by the action of returning warmth on the filth accumulated during winter. Or perhaps this disease may originate from a peculiar matter or animalculae produced by the excited skin. Doctor Huxham expresses it as his opinion that the itch of Spring is often generated by a suppression of perspiration He also thinks that there are certain constitutions of the atmosphere which favour the production of cuticular eruptions.

Morbi
tumours o
Vorn
that quo
very sep
cavities o
could co
d in the
of which
time by
mosphere
check u
reate co
nd cons
an resu
prevailin
its powe
Inf
from m
that mor
duced in
which co
the opin
from the
Dutro Bo

Morbid secretions of the sebaceous glands, forming small black topped tumours on the surface of the skin, are very common in this season.

Vernal Intermittents. In Spring Doctor Huxham informs us that quotidian, semitertian and tertian fevers are frequently very rife and coterporary with epidemic Pleurisies, Peripneumonies and inflammatory Rheumatisms. From this one would conclude that the same procataretic causes were concerned in the production of all these diseases, the last mentioned of which it is now generally allowed, are called into existence by sudden vicissitudes in the temperature of the atmosphere. So, it would seem probable, that the same cause which would excite a Pleurisy in one, might in another create an intermittent the disease affecting different parts and consequently manifesting different symptoms. All this can result from the different constitutions of men and the prevailing state of the body at the time the morbid cause exerts its power.

Intermittents are often produced by miasmata exhaled from marshes and we have the greatest reason to believe that most of those which prevail in autumn are produced in this way. There are also certain exhalations which cause the vernal intermittent, but I incline to the opinion, that this disease most usually arises from the sudden application of cold to the body.

Doctor Brown, in his Elements of Medecine, says that most

of the vernal
Scotland hav
of the weat
the origin an
finish the wh
which Vernal
1. Insensible
the great phy
diseases to
on this subje
the truth tho
epidemics
are let loose
atmosphere,
a greater esc
the unwor
tepid gases
their way a
is probable,
which they
2. Clea
of the farme
looking bra
suns beams
underwood

of the vernal intermittents which prevail in certain parts of Scotland have their origin in sudden vicissitudes in the state of the weather. Here are my observations concluded concerning the origin and course of certain diseases in Spring. I shall now finish the whole subject by enumerating some other sources from which Vernal Diseases may be derived.

1. Insensible Effluvia from the bowels of the earth. Did we credit the great physicians of antiquity we should attribute many diseases to emanations from this source. In modern conjectures on this subject we have no reason to believe ourselves nearer the truth than the ancients. For as yet the origin of many epidemics is a profound secret. However, if morbific effluvia are let loose from the bowels of the earth to impregnate the atmosphere, there is no season during which there would be a greater escape of this matter than in Spring. For now the inmost bowels of the earth are unlocked and many tepid gases which the frost of winter had confined, find their way out. That these gases may have noxious qualities is probable; for there are many subterranean substances, from which they might obtain a deleterious taint.

2. Clearing Lands. This is a very common operation of the farmer in the Spring of the year. Trees whose interlocking branches greatly preclude the admittance of the sun's beams at all seasons, together with the thick growing underwood are felled and removed. The moist soil

which had
of the sun
former yea
tion and
this is soon
of the reso
sadly impe
places and
thus situate
personal inter
What in
health of nei
to say. But
vegetation, to
their roots,
3. Water.
and wells
they are fed
in the eart
which it
which per
filth and
The
drinking i
But when

which had been thus covered and shut out from the kindly influence of the sun has in its consistence all the dead autumnal leaves of former years which are in a state peculiarly modified by their situation and very readily decompose on exposure to air and heat; and this is soon done by the processes of agriculture and the influence of the vernal sun, the power of which is sufficient to exhale the badly impregnated moisture which always exists in such places and even to generate vegetable putrefaction in materials thus situated. From this source, it would seem, that the more violent vernal intermittents originate in new countries.

What influence the belting of trees in winter may have on the health of neighbouring inhabitants in Spring, I am not prepared to say. But it seems probable, that their sickly efforts towards vegetation, together with the interruption of the soil which covers their roots, may alter the constitution of the air so as to produce disease.

3. Water. More in this season than in any other do springs and wells contain foreign impregnations and impurities, for they are fed by water which results from the dissolution of frost in the earth, carrying along taints of the substances with which it was in a state of congelation and by rains which percolate through strata of subterranean vegetable filth and beds of minerals.

The nature of the diseases which are produced by drinking impure water is not very well ascertained. But when it is recollected that this liquid whose qualities

we very na
sensibility of
which is now
should not be
constituents to dri
and Hippocr
think has i
L. Emanu
gets have calle
supposed p
giving out o
equally excl
like enclosed
atmosphere
prepared
effects and
send forth
of the coun
Tho'
to justify
various inf
constituti
may circu
or stink u
Plant some

are very various is received into the stomach the delicate sensibility of which organ is so easily deranged by any thing which is noxious, it would seem that diseases from this source should not be uncommon. Celsus attributed the origin of intermittents to drinking water impregnated by unsalutary articles and Hippocrates remarks that "the share which the water we drink has in the affair of health is very great."

L. Emanations from certain Plants. Many vegetable physiologists have called plants the scavengers of the atmosphere, from their supposed power of absorbing the foul portions of the air, and giving out other portions more conducive to health. But it seems equally evident that there are some belonging to the narcotic tribe endued with the power of throwing out into the atmosphere noxious effluvia. For the air which is impregnated by a field of poppies produces on man soporose effects and the Bohon Upas of the isle of Java is known to send forth such baleful emanations as to sicken the inhabitants of the country for many miles around.

Tho' my acquaintance with vegetables is not sufficient to justify me entering into a particular detail of the various influence which they have in altering the constitution of the atmosphere, yet I shall mention one circumstance relative to the Datura Stramonium or Stink weed which would seem to allow the belief that this plant sometimes, by its narcotic effluvia injures health.

In the mo
Indiana
village. In
there were
year. In the
year. No su
the commer
back deserve
which echo
since. My
crossed wit
which in
April or ju
with filth.
Doctor Ba
other circu
question cu
used (whose
in which
opinion by
some under
that the
frequently p
Sir do I atto

In the month of May 1816 as I was travelling through the Territory of Indiana it happened that I stopped for the night, in a small village. In a very comfortable and neat house where I lodged there were two children severely afflicted with the intermittent fever. In the morning I was disposed to enquire into the cause of this fever. No sudden change had occured in the atmosphere previous to the commencement of their attack, nor could I discover any fresh cleared ground, any marsh, or any other source, from which exhalations capable of producing this disease usually arise. My attention was soon arrested by a small field almost covered with the luxuriant growth of the stink weed, a plant which in this country springs from the earth about the last of April or first of May and delights in a soil rich and abundant with filth. I immediately recollected an opinion of the late Doctor Barton*: on this subject, which combined with every other circumstance induced me to believe that the disease in question was most probably caused by the influence of this weed (whose narcotic qualities are well known) on the atmosphere in which the patients lived. I have been strengthened in this opinion by several cases of a similar nature which have since come under my observation, and from recurring to the fact that the healthiness of a particular section of the country is frequently pointed out by the nature of the plants which grow there. Nor do I attribute all this to the plants, for their growth in certain places

*Vide Barton's Medical and Physical Journal. Vol. 1. p. 146.

pends on t
their natu
3. Vernal F
mountain
ice they sea
ters hold in
the rapidity
rennels, pro
teams from
line on the
nature of m
disease whi
constitution o

depends on the composition of the soil, yet from this source also is their nature in a great measure derived.

5. Vernal Floods. Most of those rivers which have their sources in mountainous regions and roll through an extensive country before they reach the ocean are subject to vernal inundations. Their waters hold in heterogeneous mixture every species of filth, which the rapidity of the current loosened from the bottoms of their channels, from adjacent marshes or which was swept by tributary streams from neighbouring farms. This is deposited in the form of slime on the country which is overflown. The sun exercises on this mixture of moist filth a power sufficient to generate the seeds of disease which are volatilized and ascend to enter into the constitution of the atmosphere.

Benjamin Tompkins